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THE MIND WITHIN AND THE MIND WITHOUT

ACCOUNTS of mind differ characteristically according as they are based on the observation of mind in nature and society, or on introspection. What is said of mind by historians, sociologists, comparative psychologists, and among technical philosophers most notably by Plato and Aristotle, is based mainly, if not wholly, on general observation. Mind lies in the open field of experience; having its own typical form and mode of action, but, so far as knowledge of it is concerned, as generally accessible, as free to all comers as the motions of stars or the civilization of cities. On the other hand, what is said of mind by religious teachers, by human psychologists of the modern school, whether rational or empirical, and among technical philosophers by such writers as St. Augustine, Descartes, Berkeley, and Schopenhauer, is based on self-consciousness. The investigator generalizes the nature of mind from an exclusive examination of his own.

The results of these two modes of inquiry differ so strikingly as to appear almost irrelevant; and it is commonly inferred that mind can not be directly apprehended in both cases. It is assumed, furthermore, that one's own mind, or the mind at home, must be preferred as more genuine than the mind abroad. The conclusion follows that the latter is not mind at all, but a mere exterior of mind, serving only as a ground for inference. Thus we reach the widely popular view that mind is encased in a non-mental and impenetrable shell, within which it may cherish the secret of its own essence without ever being disturbed by inquisitive intruders. Now one might easily ask embarrassing questions. It is curious that, although its exterior is impenetrable, a mind gives such marked evidence of itself as to permit the safest inferences as to its presence within. It is curious, too, that such a mind should forever be making sallies into the neighborhood without being caught or followed back into its retreat. It must evidently be supplied with means of egress that bar ingress, with orifices of outlook that are closed to one who seeks to look in. But rather than urge these difficulties, I shall attempt to obviate them. This is possible only through a version of the two

minds, the mind within and the mind without, that shall prove them to be in reality one. They are not to be united by *calling* them one; whether, after the manner of parallelism, they are called the two sides of something not designated; or, after the manner of panpsychism, they are called the inside and the outside, respectively, of the other. To unite them it is necessary to replace them by the whole mind in which they appear plainly as parts; and to demonstrate mind, as one might demonstrate any other object whatsoever, in respect of its circumstantial cognitive access. The traditional shield looks concave on one side and convex on the other. That this should be so is entirely intelligible in view of the nature of the entire shield and the several ways in which it may be sensibly approached. The whole shield may be known from either side when the initial bias is overcome. Similarly I propose to describe the mind within and the mind without as parts of mind, either of which may assume prominence according to the cognitive starting-point; the whole mind by implication lying in the general field of experience where every initial one-sidedness may be overcome.

1. *The Mind Within.*—It has long been recognized that mind as introspectively viewed consists primarily in unorganized content. If I seek within for my soul, my search is baffled because I find variety instead of unity, and states instead of substance. The content thus discovered is also baffling because it is so largely indistinguishable from what I have already attributed to the common world, the other-than-mind. So far as I can clearly specify, even to myself, what I find within, it is such as *sensation of hardness, idea of Jerusalem,* etc., where *hardness* and *Jerusalem* have already been attributed to the physical adamant and the biblical Holy Land, and where *sensation* and *idea* as yet signify nothing more than the fact that the content is found introspectively. But although distributively they belong to various quarters of the other-than-mind, when assembled and inspected these data present a character that is genuinely anomalous. As respects the other-than-mental objects to which distributively they belong, they are one-sided and abridged; and as respects their mutual relations, they are peculiarly casual and even incongruous. My idea of Jerusalem does not embrace all of Jerusalem, nor does it grow more complete, as is the case when I have direct cognitive dealings with that object; and the within-my-mind relation between Jerusalem and hardness is in the highest degree arbitrary—the horizontal cross-relation failing to bring them into any sort of natural, moral, or logical relevance. In short, by introspection I find *a chaotic manifold of fragments of the other-than-mind.*

Now is there anything in the nature of introspection that will serve to account for such a result? Introspection, as I have in an

earlier paper attempted to point out, consists essentially in a mind's remarking what it knows.[1] Where memory is called into play, objects already known are *re*-known, and thus counted; where introspection accompanies the original experience, or knowledge of first intent, the objects are counted *as* they are known. In either case, introspection, like the knowledge of first intent, *deals with objects,* adding only the bare inductive grouping of them as objects known. For this reason it is possible for introspection to consist in little more than the recovery or arrest of experience. It tends to be distributive, and so useless because merely repetitive. But it is possible, as we have just seen, that the mind should remark its content in the aggregate, and thus discover a manifold that does not wholly coincide with the not-mind. The differences may now be at least partially understood. Introspection arbitrarily interrupts knowledge of first intent, and the content which it calls into view is, therefore, fragmentary so far as the object is concerned. And when introspection collects and assembles such fragments, there results a group the elements of which are merely together. So far as the elements are discrete, that is, separated by introspective analysis, this loose relation displaces for the moment such dynamic or other proper relations as subsist within the object-manifold. I refer here not to the so-called "transitive relations," which, if I mistake not, are experiences of common objective relations such as difference, propinquity, etc. I refer to the specific relation expressed by the term *and,* when introspection discovers as content *a and b and c,* etc., where *a, b,* and *c* may themselves be anything, even relations.

Now what light do such results throw on the nature of mind? It seems to me clear that they contribute only a preliminary induction. They doubtless afford unmistakable evidence of a special and important grouping of objects; but *they do not reveal the principle which defines the group.* It is admitted that the content of mind coincides distributively with, for example, the content of nature. It is important, then, to show how content of nature becomes content of mind. Natural objects do not enter wholly into mind. Then what determines their abridgment? An individual mind gathers into itself a characteristic assemblage of fragments of nature. Under what conditions does this occur? It is a common practise among contemporary writers, even among those who grant the distributive identity of mind and nature, to neglect this problem as insoluble or irrelevant. It is held to be sufficient merely to reiterate the fact that when the parts of nature lie together within mind they do not compose as they do within nature. But to make such a proposition important, not to say adequate, it is necessary to advance further.

[1] See "Mind's Familiarity with Itself," this JOURNAL, Vol. VI., No. 5.

For there remains the momentous fact that mind has both a natural origin and a natural habitat. The modification of nature that gives rise to mind, to mind on the whole and to each and every element of its content, takes place under natural auspices. Therefore it must be possible to follow the process of nature and *mark the modifying circumstances that define the mind-status taken on by certain of its parts.* And it is strange that this should be so largely ignored by philosophers, when it is, after all, so familiar a matter. It is popularly conceived that nature gets into mind at the moment when a physical organism, impelled by its interests and qualified by its capacities, is brought to notice it. By "notice" I mean no more than *act on* in the manner characteristic of any nervous organization. Such facts are, it is true, not introspective. But they should not be neglected on that account. It follows from what has been said that they are not only relevant, but sorely missed. The lack of them is the characteristic defect of the introspective method. It is possible, doubtless, to arrive at them in continuation of a study begun introspectively. Having assembled its content, a mind may proceed to compare it with nature and note its characteristic privation and incongruity. There might reasonably issue from such a comparison the conclusion that the inner manifold is selected by cerebral mechanisms functioning locally and obeying the interests of the organism. But such considerations are discontinuous with the introspective attitude; I am less likely to remark them with reference to my own mind than with reference to the mind of another.

To conclude, then, the mind within is evidently an incomplete experience of mind, containing in the foreground the mind's objects distributively or collectively regarded. The very incompleteness of this experience points to evidence neglected, evidence which is indispensable to the round knowledge of mind. That evidence, as will now appear more clearly, lies in the foreground when mind is an object of general observation.

2. *The Mind Without.*—As mind appears in nature and society, it consists primarily in behavior. The behavior characteristic of mind is promptly and almost unerringly distinguished by all save the most rudimentary intelligences. Indeed, the capacity of making such a distinction is one of the conditions of survival. Upon the lowest plane of social intercourse a mind is a potentiality of bodily contact, and is marked and dealt with accordingly. But even upon a comparatively low plane there is recognition of a characteristic difference between minds and other bodily things. Minds exhibit spontaneity and waywardness, a certain isolation of control. Individually they manifest persistent hostility, which is feared in them, or persistent friendliness, which is courted in them. Such a recognition of

mind is already present in a mind's discriminating reaction to anger, or to a hereditary foe, as denoting a marked or constant source of danger. Where social relations are more subtle and indirect, the element of interest tends to supplant the more mechanical element of mind. In my dealings with my neighbor I am most concerned with his desires or his consistent plan of action. I can injure him by checkmating his interests, or profit by him through combining my interests with his. It is most important for me to know what he consistently seeks. He is a living policy or purpose which I must apprehend if I would make either peace or war. Thus far, then, mind is a bodily complex moved by interests; having unity of control and consistency of action, in terms of self-seeking.

Now wherein lies the irrelevance of this account of mind to that based on introspection? Surely in the fact that, whereas in the introspective experience one at once encounters the objects of mind, in this account they are thus far wholly neglected. But they do not necessarily escape general observation. If I am to deal with my friend or enemy at close range, it is clear that I must think with him, or always to some extent traverse with him the objects in his field of view. Upon higher planes of intercourse, in narrative, in straightforward and companionable discussion, another's mind consists more of objects than anything else. Its bodily aspect falls away, and even its impelling interest tends to be neglected. But grant that as mind lies before one in nature and society its bodily and desiderative components are focal and its objects marginal. Even so, it needs only a shifting of the attention to correct the perspective. I may deliberately take pains to discover and supply a mind's objects. To do so I have only to observe what the mind selects from its environment. Is this not exactly what the student of the animal mind does? We are told, for example, that the amœba has four general reactions of the organic type. One of these is described as *positive:* "a pseudopodium is pushed forward in the direction of the stimulus, and the animal moves toward the solid." The solidity of bodies enters into this animal's practical economy: "the positive reaction is useful in securing contact with a support on which to creep."[2] Here is an element of the environment that is marked and isolated by a response which expresses the organism's self-preservative impulse. Do we, then, not know the content of the amœba's mind? Should I ever understand the matter better by contracting my own mind to amœba-like proportions? I grant that as I have loosely described the matter, much doubt exists as to how far the amœba's discrimination goes, but in his studies of sensory discrimination the comparative psychologist has himself devised methods which open the way to greater

[2] Washburn, "The Animal Mind," p. 40.

exactness.[3] Conditions may be contrived which make it to the animal's interest to notice differences, and these may be progressively refined until the animal is pressed to the limit of his sensibility. When after such tests the conclusion is reached that the animal *feels the solid* or *sees blue*, what remains to be said by way of "interpretation"? If we read too much into such a conclusion, we read it not from the experimental facts, but from that very introspective analogue which is being held in reserve as a means of translating the results from behavior into mind.[4] The amœba does not, it is true, feel the solid as we do. Therefore let us observe the amœba, and not undertake to say how we should feel if we were amœbæ. The environment, as it lies before us and as it is presented to the amœba, is distinguished by the *amœba's action*, wherever this is clearly marked.

There exists, I know, a general belief to the effect that mental content can never be known in this way. But this belief appears to me to be due to a curiously perverse habit of thought. It is customary to look for the object *within the body* and then solemnly declare that it is not to be found. Though long since theoretically discredited, the "subcutaneous" mind still haunts the imagination of every one who deals with this problem. Now why not look for the object where it belongs, and where it is easily accessible—namely, in the environment? Is it not in truth the environment which the amœba or any other organism is sensing? If, then, we are in search of content, why take so much pains to turn our backs on it, and look for it where by definition it must escape us? I eagerly await that "interpretation" with which the animal psychologist proposes to supply the animal mind with introspective content; but I expect to wait in vain. I believe that before such an interpretation is offered to the public it will be recognized by the investigator as only a muddled version of something which he has already formulated. Then how are we to account for this distinction between animal behavior, based on observation, and the animal mind, based on an introspective analogy which, since the discovery of exact methods in this branch of research, no one has had either the time or the will to carry out? It is due, I think, simply to a failure to group together *behavior and those elements of the environment selected by the*

[3] *Cf. op. cit.*, Ch. IV.

[4] I have reference here to such statements of method as the following: "Knowledge regarding the animal mind, like knowledge of human minds other than our own, must come by way of *inference from behavior*. Two fundamental questions then confront the comparative psychologist. First, by what method shall he find out how an animal behaves? Second, how shall he *interpret* the conscious aspect of that behavior?" (The italics are mine.) Washburn, "The Animal Mind," p. 4.

behavior, the reaction *and* the stimulus. It is true that neither behavior nor even conduct is mind; but only because mind *is* behavior, or conduct, *together with* the objects which these employ and isolate.

Precisely, then, as introspection obscures the instrumental and motive factors of mind, so general observation obscures its objective factor. And when these factors are united, they compose a whole mind, having a structure and a function that may be known by any knower, whatever his initial bias.

In conclusion let me briefly summarize the parts of mind which the analysis has revealed.

1. In the first place, a mind is a complex so organized as to proceed desideratively or interestedly. I mean here to indicate that character which distinguishes the living organism, having originally the instinct of self-preservation and acquiring in the course of its development a variety of special interests. I use the term *interest* primarily in its biological rather than in its psychological sense. Certain natural processes act consistently in such wise as to isolate, protect, and review themselves.

2. But such processes, interested in their general form, possess characteristic instrumentalities, notably a bodily nervous system which localizes the interest and conditions its intercourse with a physical environment.

3. Finally, a mind embraces certain objects, or parts of the environment, with which it deals in its own behalf.

The natural mind, or mind as here and now existing, is thus an organization possessing as distinguishable, but complementary, aspects, *interest, body,* and *objects.*

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THE EXISTENTIAL UNIVERSE OF DISCOURSE

IF things are to become objects of knowledge or the subject-matter of problems, they must at least reveal the fact that they exist. They must touch experience at some point, make a difference somewhere in the world that gets observed; if they do not, there is no clue anywhere to them, no possibility of knowing either what they are or that they are. Human judgments about existence must accordingly be directed upon a subject-matter which has been revealed within the horizon of human experience. The empirical world which has thus far been brought under observation includes the subject-matter of all problems about existence which can at present

arise, and all the evidence upon which the solutions of those problems can at present be based. This is a situation which defines the limits of the subject-matter of all existential judgments and all existential problems, and which functions, therefore, as a universe of discourse, as the ultimate universe of discourse for all judgments and inquiries concerning existence. It need hardly be pointed out that the universe of discourse which we use to-day has been gradually achieved. It represents the labor of many centuries, and we may trust that its content will be enriched and modified by the labor of many more. But the fact that there is a universe of discourse can not constitute a problem under that universe of discourse. There are many problems of astronomy, but the fact that there is the science of astronomy can not be an astronomical problem. Anthropology is particularly rich in problems, but the existence of their subject-matter can not be an anthropological problem. In general, the subject-matter of problems is the precondition of having problems about that subject-matter. And if, as I have maintained above, the subject-matter of every judgment which affirms existence must be something which has betrayed its existence in the only possible way, the fact that we have such a subject-matter, *i. e.*, that we have the necessary precondition of any inquiry into existence, can not be a problem in that inquiry. We can not go behind or beyond our ultimate existential universe of discourse; and to say that something has been observed is, accordingly, simply to say that it is a member of the universe of discourse above referred to, and *vice versa*. Given this membership, given, that is, its discovered existence, an object may become the subject-matter of problems, and knowledge of it may be accumulated; but the object must be discovered before it can be studied, and the fact that there is a subject-matter can not constitute a problem about that subject-matter. Of course the fact that there is the science of chemistry may generate a problem, but not a problem of chemistry. The fact that things are observed may generate a problem on condition that their universe of discourse can be referred to a more comprehensive existential one. If, however, an object must be discovered before it can become the subject-matter of speculation which concerns existence, we have already reached the ultimate universe of discourse in predicating of objects only that they are observed, discovered or perceived; which is no more than to say that there is an existential subject-matter, or that there is an existential universe of discourse.

The term "problem about existence" or "existential problem" may suggest an inquiry as to whether or not the subject-matter of the problem exists. And then to say that the subject-matter must reveal its own existence before it can become the subject-matter of an

existential problem, would contradict this meaning of the term. This line of criticism would be natural to many who were brought up on the problem of the "outer world." Here was a problem of which the subject-matter was apparently, The outer-world, does it exist? How, if its existence was revealed, should we have been in such dialectical straits about it? And yet, could its existence have been revealed any more clearly than it was? Nature seemed to be doing her part, while we did our best to baffle nature's excellent intentions. This digression is not so irrelevant as it may appear, for it is important to realize that existential discussions must start with existence and proceed to the investigation of that existence, following up whatever ramifications may be discovered. One reaches continually new starting-points and thus new subject-matter; but always our subject-matter must be the material we are investigating, and that would seem to be the existence we last started in to investigate, and not the existence we shall, with good fortune, arrive at. Thus, while an existential problem may be an inquiry whether something exists, it can never be an inquiry whether the subject-matter of the discussion exists.

However awkward the above statement of the case may be, the thing itself is extremely simple. It follows, however, that knowledge can not be defined in terms of perception. I do not know a thing when I perceive it unless I do more than perceive it. Knowledge of existence presumes and depends upon whatever existential universe of discourse we are provided with. The one at our disposal is, of course, widely different from the one men had to use before the middle of the fifteenth century; the alteration, however, has been brought about by the natural process of research and discovery, a process which there is no reason to suppose is going to cease in this generation or the next.

II.

Knowledge of existing things has to do, then, with members in the above-described universe of discourse. Without attempting a complete or a dialetical statement on this point, it can fairly be said that the kind of thing called knowledge is as conveniently provided for our inspection as any other kind of thing. Chemistry, biology, engineering, agriculture, astronomy, are bodies of knowledge that have been accumulated about portions of discovered existence. Such a formula as NaCl = salt signifies knowledge of a particularly important type, knowledge of the way determinate things combine to produce determinate results. If now the word knowledge is to be used to mean uniformly the same sort of thing, it ought to be illustrated as well by one specimen as by another; and the symbol NaCl is a convenient illustration.

Accordingly as we are interested in contemporaneous existence, or in relations of before and after, we can say salt = NaCl, or Na + Cl produce salt. I shall use the latter form of statement, for it is the genesis of results in time that is here kept in view, the way determinate things happen upon a basis of particular conditions. But what is going to happen has got to be learned by experience of the factors that enter into the situation. The potentialities in things are greater than appear on the surface; accordingly, it is natural for age to expatiate to youth on the capacities for good and evil which lie hidden in things, and which only experience can find out. Common sense thus distinguishes what we may call the inside and the outside of things. But common sense does not, like much philosophy, take one aspect and forget all about the other. Every one will understand what is meant if we call these two aspects "appearance" and "causality," or "immediacy" and "causality." The lesson that wisdom and maturity seek to instill into inexperience and youth is that things cooperate as factors to produce determinate results and that these results seem to have so little to do with the "appearance" of the factors which combine to produce them. If now we use the letters I and C to signify immediacy and causality, we can let I_{Na} stand for the immediacy of sodium and C_{Na} for the causality of sodium. We might then express by the symbol $I_{Na}C_{Na}$ what we mean by the word sodium. In the same way, the symbol Cl may be expanded to $I_{Cl}C_{Cl}$. And now substituting these analytic symbols for the usual ones of chemical notation, we can rewrite the formula for sodium chloride as follows: $I_{Na}C_{Na} + I_{Cl}C_{Cl}$ produce salt. All that has been done in the expanded formula is to exhibit the distinction between what was called above the inside and the outside of things, and to symbolize the two chemical elements sodium and chlorine as having an "inside" and an "outside." However, in the operation of these factors which results in the genesis of salt we are concerned only with their causality. In this efficacious relation, the immediacy of each of the causal factors is an irrelevant accretion, which can be therefore omitted from the formula, giving us $C_{Na} + C_{Cl}$ produce salt. The product NaCl has, however, its own immediacy, for the fact is not merely that something with a certain causality exists but that the thing in question has come under observation, *i. e.*, it has cooperated in generating a perception. If we let P stand for the organ of perception, I_P will signify its immediacy and C_P its causality or productivity or capacity for making differences. And now viewing our product salt as something having both causality and immediacy, we are able to write $C_{Na} + C_{Cl} + C_P$ produce salt; for, unless C_P enters into the factor combination, the product can not emerge into the existential universe of discourse. It must be understood that the

letter P stands for more than sense organ in the restricted physiological sense; it means the organ of apperception as well as of perception, and it signifies, accordingly, temperament, idiosyncrasy, and all the complexity of organization which contributes to the generation of experience, *i. e.*, to the generation of whatever product finally emerges. So much by way of preliminary illustration, using a simple formula from chemistry.

Let us now make the formula general, and write $Y + Z + P$ produce X, in which X is any determinate product, whether thing or sensation; P, the organ of perception, and Y and Z, the causes cooperating with P to produce X. Omitting immediacy, we get $C_Y + C_Z + C_P$ produce X. X is the empirically total product and could be represented by $I_X C_X$ if there were any occasion to do so. The formula $C_Y + C_Z + C_P$ produce X symbolizes the way things are pregnant with determinate possibilities. It means that things go together in determinate ways to yield determinate results, that the results are unaffected by the immediacy attached to the causes, and that the results must make observable differences somewhere if there is to be any clue to their existence. Whatever may be true of things which have not cooperated with C_P, the things that can be objects of science or of any genuine reference have entered the universe of discourse by making some difference which organs of observation can detect. The fact that human judgments about existence have to be made under the control of this universe of discourse is what is meant by insistance upon experience and empirical evidence.

I have sought thus far to avoid raising the question whether or not things are transformed by the cooperation of C_P. Without the cooperation of C_P, there is no explanation of immediacy belonging to the product X. It may be said that no explanation is necessary. To say this is to say that $C_P = 0$ is a more natural assumption than $C_P > 0$, and that the demand for an explanation of the immediacy of X must itself be justified. Besides, to make such a demand seems very much like going back on the position thus far defended, that the world as observed and experienced is our ultimate existential universe of discourse. It is, however, not the present writer who raises the question. The interest in formulating a doctrine of realism that shall be both critical and reasonable is a sufficient motive for considering that " naïve realism " which holds that things when unperceived have the same complement of secondary qualities that they have when perceived. The naïve realist evidently asserts $C_P = 0$, in so far as we are concerned with genesis of anything characteristic of X. It is a question of empirical evidence, and the evidence is that C_P does contribute its quota to the product, and that the quota is the immediacy aspect without which there might be a uni-

verse, but no universe of discourse. In any case the evidence has to be gathered from a world that has been observed; that is, the naïve realist has to use the same universe of discourse as the empiricist. The world of observed and noted things, of physiology and experiment, is a world where the constitution of C_P does, apparently, make a difference. This universe of discourse can not possibly contain the information that another and less determinate class of things has the same immediacy characteristics as the class of experienced things. The question which the naïve realist attempts to answer would seem to be a logically futile one upon the assumption $C_P = 0$, which has to be made in order to save the reduplication of secondary qualities outside the empirical universe of discourse.

How does the case stand if we make the other assumption, $C_P > 0$? This assumption regards the organ of observation as a factor which really cooperates, not in determining "reality," but in determining experience. From this point of view, to ask what things are like outside of experience is like asking how a sonata sounds to a man totally deaf, or whether a man would pronounce French and German the more correctly if he had no organs of speech; it is to ask what is the content of a product when we deny the conditions necessary to generate the product. To write $C_P = 0$ is to say there is no experience. The naïve realist need not deny that. This is the first step in the idealistic argument, but the next step that thereby material existence disappears, can not be taken. To take again our formula $C_Y + C_Z + C_P = X$, it is evident that all that happens when C_P is eliminated is that the other factors are unable to reveal their existence. They do not thereby, however, cease to exist as conditions which, when the cooperation of C_p is obtained, will produce a determinate X. To say that we can not know things as they are because we must know them under the conditions of our universe of discourse, reveals a curious conception of "reality." It is like saying we can not hear the real music because we have to hear it. A thing is as real in one relation as in another. The factors C_Y and C_Z are not less real when they cooperate with C_P than when they do not. The product $X = I_X C_X$, is not less real than a product C_X, forbidden ever to reveal its presence. But to ask further concerning the factors that cooperate with C_P, to ask what they may be in addition to being conditions for the functional operation of C_P, is to ask an artificial question. The realist, the idealist, and the empiricist must all start with the same ultimate universe of discourse, the world with which we have thus far become acquainted. Whatever the "real universe" has been about, the universe of discourse has not stood still through the interval from Thales to Lord Kelvin. It has been a creature of distinctly radical habits and has

often enough brought shrill lamentation from its conservative custodians. A more unsatisfactory exponent of eternal verities can hardly be imagined.

III

The above considerations are not favorable to "naïve realism," using that term in the sense above indicated. They should, however, encourage a type of realism characterized by a scientific temper and a spirit of this-worldliness. For after all, "naïve realism" is a kind of other-worldliness. The realist of the type here advocated will work within the limits of his natural universe of discourse. It is a pity that he must be called a realist, for such terms have meaning only in the setting of polemical alternatives which express issues that are as good as dead. Such a "realist" who pursues inquiries about existence will ask his questions and frame his answers in terms of his empirical subject-matter. What does the problem of perception[1] now become? There is no longer any meaning in such a phrase as "the problem of perception." Perception is one of the processes in the natural world and its investigation is like the investigation of any other natural process. There must be various problems of perception as there are various problems of digestion. What those problems are depends upon the progress already made, the resources for investigation, and the difficulties encountered. The problems of perception will be inquiries into the operations of natural factors, and the solutions of those problems will be the discovery of how the things in question go together. The knowledge thus obtained will be a case of the type of thing symbolized by the expression "Na + Cl produce salt." If now we recognize that the world of our acquaintance contains the subject-matter of all inquiry about existence and all the evidence with which to meet the demands of such inquiry, we seem entitled to say that experience is the ultimate existential universe of discourse. The term experience does not here mean anything different from empirical fact. It is the content of X generated by C_Y, C_Z, and C_P in combination. Experience may not be an altogether satisfactory name for that product, but there is no particular reason why it should not be understood, even by those who devote themselves to the confusion of pragmatists.

But why, then, use the word experience if we mean the empirical aggregate thus far envisaged? I wish a better word were available, but it should be a word that would keep us reminded that the subject-matter of existential theory is apperceived as well as perceived, and

[1] I may refer here to the article "Perception and Epistemology" by Professor F. J. E. Woodbridge in "Essays Philosophical and Psychological in Honor of William James" for such an account of this question as would be here in place.

that the apperceptive factors included in the reference of C_P influence in a very decisive way the judgments of philosophy. These judgments often lead to new perceptions and modify existing apperceptions, and so the existential universe of discourse grows. In generating the subject-matter of human judgments, the human factor plays a part that can not be overlooked.

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DISCUSSION

MOTOR PROCESSES AND MENTAL UNITY

IN Professor Judd's interesting article on "Motor Processes and Consciousness" in the issue of this JOURNAL for February 18, he sets forth his own view with a contrasting background of earlier theories which make use of "motor processes." He speaks of Dewey (1896) and McDougal (1898) as "among the first writers to emphasize the importance of motor processes as general conditions of consciousness"; but says they fail to apply the theory to specific cases. On the other hand, Münsterberg, Royce, and I are cited as dealing with specific cases (the case of the "general idea" being that selected in my own instance), and as not giving an account of the "relation of all motor processes to consciousness"; our "formulas are not comprehensive enough." The theory of Professor Judd, on the contrary, repairs these defects in both directions: he accounts for mental "organization" of all kinds, with the resulting "unity," in terms of motor processes, and also applies it to specific cases, such as recognition of particular degrees of unity, of "likeness," etc.

It is not, then, a question of the details of any theory of either the general or specific operations of the motor processes, that Professor Judd speaks of, but the question of the utilization of such processes *for purposes* of theory, either of general or of specific organization in consciousness. This gives his points a certain vagueness; but at the same time it makes his restrictions more comprehensive and decided, for all the writers cited. Have I, for one, not announced a general motor theory of mental organization and unity, and not applied it to other specific cases than just the one Professor Judd attributes to me?

Speaking only for myself, I may say that his allusion to my position is, in respect to the one problem to which he limits it, in a large sense correct, but that the limitations he sets upon it are altogether incorrect; and this bears upon the two matters in which Professor

Judd finds his own views in advance of those of the other writers named. I have gone into the questions of mental organization and recognition of unity through motor processes, both in general and in reference to particular cases, with results in many respects similar to those of Professor Judd, as he recognizes for the one case of the "general idea." The views (1) that mental organization and unity are always motor in character, and (2) that recognition both of the "general" and of all other sorts of objects, percepts, or ideas, is due to distinctive motor processes, are points explicitly taught in my book "Mental Development" (first edition, March,[1] 1895: the quotations that follow being from that edition). Further, (3) these are only instances of very varied specific applications made in my books. To wit: "The assimilation of any one element (of content) to another, or the assimilation of any two or more such elements to a third, is due to the unifying of their motor discharges in the single larger discharge, which stands for the apperceived result" (p. 309). All associations of ideas are explained in the context of this passage as cases of relative assimilation, due to "synergy" of motor processes. "Among these elements (motor), the attention strains are of the first importance: they constitute largely the sense of activity in mental synthesis or apperception everywhere"[2] (pp. 309–10).

Again, as to perception, which Professor Judd very rightly emphasizes—"All perception is a case of (such) assimilation. The motor contribution to each presented object is just beginning to be recognized" (This in 1895: it is illustrated by cases of "apraxia," etc.): in apraxia, "the central link by which the object is made complete, the synthesis which made the whole complex content a thing for recognition and for use, this is gone" (pp. 311–12).

As to the employment of this for consciousness generally—a thing which Professor Judd also rightly values; "Every two elements whatever, connected in consciousness, are so only *because they have motor effects in common*" (italics in the original, p. 315). "In recognition, they have so much in common that they are presented as one" (p. 315). In the same connection an analysis of attention is made which distinguishes the motor processes for individual recognition from those of "class-recognition" or "generalization," the

[1] And summarized still earlier in an article in *Mind*, January, 1894. (See "Fragments in Philosophy and Science," especially, pp. 181 ff.)

[2] Professor James recognizes and quite adequately describes my view as the "synergy" theory of unity in his Princeton address, "The Knowing of Things Together" (see *Psychological Review*, II., 1895, p. 118). As to the actual working of the interaction of sensory and motor factors as a universal thing, it is discussed in the section on "Sensori-Motor Association," "Mental Development," Chapter XV., No. 3.

latter proceeding upon the differences of motor processes of the different senses.

As to unity and identity: "the mental demand for identity is really *a demand, i. e.,* a tendency to *act in one way upon a variety of experiences*" (italics in the original, p. 323).[3] In the chapter in which the motor theory of generalization is developed, that theory is not limited to one application, as Professor Judd supposes; the following summary from p. 329 is to the point: "Apperception is genetically the simple fact of motor habit, with the assimilations and associations to which it gives rise. Motor habit is the great devouring thing that throws its arms around all mental details and unifies them in its embrace. The most refined and subtle forms of it take place in the attention. Attention supplies the form to every content. Attention, representing as it does the most refined forms of motor reaction upon revived mental content, its adjustments are the medium of conception, thought, reasoning, of all possible groupings and arrangings in the mind. Thought exhibits, therefore, a new stage in motor accommodation. It shows the organism's adjustments to the relationships of truth, as memory, perception, sensation show its adjustments to those of fact."

Many such passages might be cited, showing the application of the theory to specific cases;[4] but it is not necessary; for the whole book ("Mental Development") is so saturated with the motor theory, both in general and in its detailed applications, that it stands

[3] Cf. Judd, article cited, p. 89.

[4] As to other specific instances: in my address on "Selective Thinking" (*Psychological Review*, January, 1898), reprinted in "Development and Evolution," the motor theory is applied to "selective thinking," or "the systematic determination of contents as true" ("Movements it is which, by their synergy or union, give unity and organization to the mental life," "Development and Evolution," p. 248; "novelty, variety, detail of experience, can be organized in the mental life only in so far as it can be accommodated to by action; if this can not take place, it must remain a brute and unmeaning shock, however oft-repeated the experience may be," *ibid.*, p. 249). See also "Social and Ethical Interpretations," 1897, chapter III., 3. In the work "Thought and Things," Vol. I., chapter III., the construction of the simplest mental objects is shown to be due to the development of special interests and dispositions fundamentally motor in character; and in Vol. II. of the same work, theories are worked out in which contradiction and negation, as well as identity and consistency, are considered as meanings possible only through variations in motor organization and inhibition. So, too, in the same work, the "inner control" factor which constitutes the "self," is found to be a segregation of motor tendencies and dispositions; while the "individuation" of objects, at every stage of mental development—the treatment of contents as *in any sense* individual units, with the concepts of unity, plurality, group, etc.—is found to involve fundamental motor organization. Surely, no lack of *attempts*, at any rate, to work out specific cases!

out almost in every section. I have no interest in calling attention to this save that of being accurately represented. Indeed, when Professor Judd's excellent "Psychology" came out, a cursory reading showed me that our respective views went well together on this point: but as he had not noticed it, it seemed unnecessary for me to speak of it, especially as I had then no time to read his work with care. Since, however, he now cites my views, himself finding the same position *in principle* common to his work and mine, and yet represents me as failing to see its generality and also to give it special applications, I think it only proper to say that in this he is mistaken. Of course we "motor-men"[5] welcome so able a coadjutor, and I do not mean for an instant to imply that Professor Judd has intentionally misrepresented me. But I have now for a decade so "harped" upon the motor factor, both in my publications and in my lectures, that I had begun to fear that I might be called a crank on the subject.

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REVIEWS AND ABSTRACTS OF LITERATURE

Essays on Evolution, 1889–1907. EDWARD BAGNALL POULTON. Oxford: Clarendon Press. 1908.

Professor Poulton is already known to many readers through his instructive little book on "The Colors of Animals" (International Scientific Series, 1890). To the zoologist his name is chiefly identified with important work upon protective coloration and "mimicry" among insects. The present collection of essays will be of interest alike to the general reader and to the special student of evolutionary problems. An ardent champion of the doctrine of natural selection in its most uncompromising form, Poulton remains faithful, throughout these days of hostile criticism, to the orthodox interpretations of "mimicry," "warning coloration," etc. His opening chapter, the introduction, is largely devoted to a protest against those twin fads of the hour, mutation and Mendelism;[1] and more particularly against the influence of Bateson upon current English biology. That active critic and investigator, and with him his school, are indicted under six heads, of which the last three are: "The exaggerated estimate of the importance for evolution of, first, Bateson's work on variation, secondly, Mendel's interesting discovery"; "The contemptuous depreciа-

[5] I recall the remark made to me in conversation by Professor Münsterberg about a decade ago to the effect—"You and I are the motor-men on the psychological electric car!" We are glad to have other motor-men with us, but we don't want to lose our own job!

[1] One may speak thus without calling in question the genuineness of certain important and well-attested facts.

tion of other lines of investigation directly inspired by the work and teaching of Darwin and Wallace"; and "The natural consequence of the last: a wide-spread belief among the ill-informed that the teachings of the founders of modern biology are abandoned." By zoologists of this school Professor Poulton's protest will doubtless be regarded as the fulmination of a hopeless reactionary; but we believe that the unbiased reader will have a good deal of sympathy with it. And those, at least, who have seen many of their youthful idols thrown down by these same ruthless hands, will take considerable personal satisfaction in this spirited counter-attack upon the destroyers.

It is interesting to note that while Morgan[2] finds strong support for the mutation hypothesis in the phenomena of protective and mimetic resemblance, it is precisely in this field that Poulton believes its operation to be utterly excluded. "It is as unlikely that a key could be made to fit a complicated lock by a number of chance blows upon a blank piece of metal, as that the elaborate pattern on the wings of a butterfly should have been reproduced on those of its mimic by Mutation" (p. xxiii). In a later chapter, after reciting the various methods by which transparency is brought about in the wings of those butterflies which are said to "mimic" hymenoptera, he feels warranted in declaring: "The comparison of these details is almost a demonstration of the operation of the Darwinian theory." Granting the facts as stated, they certainly do offer strong evidence for the view that the *usefulness* of the end to be attained has stood in some causal relation to its realization. And natural selection is the only (scientific) hypothesis extant which is consistent with this assumption in the present case. Is there not just a bit of overconfidence, however, in the claim (p. 267) "that, even if the theories which have been proposed as substitutes for Natural Selection have not been destroyed in single Sections of this essay—and I confidently believe that they have been thus destroyed over and over again—their most convinced supporters will admit that they must yield to the accumulated pressure of all the arguments here brought forward"? Our opponents do not commonly obey a summons to surrender as promptly as all that!

Even suppose, however, that the main contention of de Vries and the mutationists be granted, and that we admit the inability of the selection of ordinary individual or quantitative variations to raise permanently the mean of the species, "it is obvious that the variational material for evolution would be reinforced by no new category. The only effect would be to reduce the old category. The power which Darwin and others believed to reside in minute variations generally would be shown to exist in a part and not the whole of these" (p. xxxix). This criticism would evidently not apply to mutations of considerable magnitude, for the occurrence of great and abrupt modifications might obviate the acknowledged difficulty regarding the "pre-useful" stages of organs. It is true, we have no satisfactory evidence for such a sudden method of acquiring useful structures.

[2] "Evolution and Adaptation."

After a brief discussion of the phenomena of Mendelism and the claims of the Mendelians, he writes: "I should be the last to undervalue these results, but their true worth is not enhanced by such astonishing exaggeration as that which appears in the passage I have quoted. . . . The human mind is so constituted that a touch of megalomania is to be expected, is even to be regarded with sympathy, in the first flush of a new victory over the unknown. . . . But to suppose that the problem of evolution is thereby solved, or is likely to be solved, is unreasonable" (p. xxxiii). And again: "It is probable that the part played by Mendel's principle in evolution is limited to the prevention, in certain cases, of the supposed 'swamping effect of intercrossing'" (p. xxxiv).

The succeeding chapters (the "essays" proper) are ten in number, dealing, respectively, with "A Naturalist's Contribution to the Discussion upon the Age of the Earth"; "What is a Species?"; "Theories of Evolution"; "Theories of Heredity"; "The Bearing of the Study of Insects upon the Question 'Are Acquired Characters Hereditary?'"; "A Remarkable Anticipation of Modern Views on Evolution"; "Thomas Henry Huxley and the Theory of Natural Selection"; "Natural Selection the Cause of Mimetic Resemblance and Common Warning Colors"; "Mimicry and Natural Selection"; and "The Place of Mimicry in a Scheme of Protective Coloration." They are arranged in a logical, rather than a chronological, order. Only one (the last) was written for the present volume, though many have been revised and modified. The essays are of very unequal value, and there is, as would be expected, considerable overlapping and repetition.

The author's own standpoint, it is scarcely necessary to repeat, is "straight" natural selection. Lamarckism is rejected after considerable discussion and the presentation of some very forceful, if not wholly new, objections. The treatment throughout the volume is that of a partisan rather than of a judicial critic, though, on the whole, it is moderate in tone. The following sentence will doubtless arouse instant dissent in the minds of many biologists: "The more we study the characters of animals in general, even though we at first can see no utility, the more we come to admit this principle, and to believe that either now or in some past time the characters have been useful" (p. 106). He means, apparently, *all characters.* Had he said *most characters,* or the *fundamental characters,* there would have been no room for difference of opinion. Such claims, moreover, are not necessary to the theory of natural selection, nor do we grant that "if inutility could be proved for any large class of characters, the theory would certainly be destroyed as a wide-reaching and significant process" (p. 107). It may well be that the superficial "diagnostic" characters of the taxonomist are largely useless to the organism, as has been frequently asserted of late. We must concede, nevertheless, that in matters of bionomics the opinion of a well-trained naturalist, having a "speaking acquaintance" with a myriad of living forms, is worth vastly more than that of the average paraffin-imbedding, section-cutting, oil-immersion type of biologist, who is not over-particular as to just what species he borrows his material from, and who does not always

seem to bear in mind that living organisms are just as much realities as are (stained) cells and nuclei.

Essay number VI. deals with little-known and extremely interesting facts in regard to an English anthropologist, James Cowles Prichard, who, more than eighty years ago,[1] anticipated the now dominant views regarding the inheritance of acquired characters. Indeed, his utterances on this subject have such a distinctly modern sound that I can not forbear following Poulton in quoting from them. "It appears to be a general fact," writes Prichard, "that all connate varieties of structure, or peculiarities which are congenital, or which form a part of the natural constitution impressed on an individual from his birth, or rather from the commencement of his organization, whether they happen to descend to him from a long inheritance or to spring up for the first time in his own person—for this is, perhaps, altogether different—are apt to reappear in his offspring. It may be said, in other words, that the organization of the offspring is always modeled according to the type of the original structure of the parent.

"On the other hand, changes produced by external causes in the appearance or constitution of the individual are temporary, and, in general, acquired characters are transient; they terminate with the individual and have no influence on the progeny."

And these theoretic statements are supported by some of the well-known arguments. It must be added, however, that Prichard was not consistent in his adherence to these views and that the latter, together with some interesting foreshadowings of the evolution theory, were suppressed in later editions of his work.

Naturally the various phenomena of protective coloration and mimetic resemblance take a leading place in the volume at hand. The author regards the original "mimicry" theory of Bates as largely (but not wholly) supplanted by the theory of "common warning coloration" ("synaposematic coloration," in Poulton's language) originated by Fritz Müller. The former recognized only the imitation of offensive, and therefore "warningly" colored, insects by supposedly inoffensive and edible ones. According to the latter hypothesis, the "mimics" may be, and commonly are, likewise offensive. The ill-flavored, or otherwise repellant, insects of a given region—so the theory runs—adopt a common type of warning coloration. Thus the insect-eating animals of this geographical section learn to distinguish objectionable forms more readily than if a different "danger signal" had to be learned anew for each species encountered. It is needless to add that all these color patterns are supposed to have been acquired through the natural selection of advantageously colored individuals, without any conscious efforts on the part of the insects.

It is well to note, however, that the very existence of "warning" coloration has recently been called in question, and that by no means all biologists agree as to the significance of the facts of mimetic resemblance. Poulton and those of his manner of thinking have the advantage

[1] "Researches into the Physical History of Mankind," 2d edition, 1826.

of offering an explanation which is at least intelligible, however great a tax it may impose on the imagination. And they have the advantage—and a great one!—of a first-hand acquaintance with the facts in question. It is easy enough to write with flawless logic against the existence of one or another type of protective resemblance, while seated in the seclusion of one's study; but in this case, as elsewhere, it is apt to be true that "seeing is believing."

It would seem futile, however, in the present uncertain condition of our knowledge in this field, to draw up such an elaborate classification of adaptive colors as Poulton here offers us. Some four types and ten subtypes are distinguished, according to their hypothetical significance in the bionomics of the animal, each distinguished by a descriptive name of Greek origin. This strikes us as a little premature. Who can tell but many of these rather uncouth words will prove to be stillborn? We also wonder whether Poulton has always been duly critical in accepting the statements and interpretations of others. Many alleged illustrations are offered us of one or another of the phenomena under discussion, for which one more sceptical on this subject would certainly have demanded better evidence than is here offered us. We have in mind, for example, that remarkable lepidopterous larvæ (p. 253) the front part of whose body has been moulded by natural selection into close resemblance to an ant, while the remainder of the body represents some burden which the hypothetical ant is dragging after it! We should like to know, also, whether the current statement (cited by Poulton) as to the existence of a phosphorescent "lure" in the case of certain deep-sea fishes is anything more than a surmise. Experiment, or even direct observation, showing the real function of this organ, is, of course, out of the question, and it is more than possible that even the phosphorescence of the tentacle has merely been inferred from its structure. (The reviewer does not have access to the original descriptions.) Nevertheless it is stated, without any qualification, that the fishes in question "have a phosphorescent lure attractive to the other fish on which they feed" (p. 378). Perhaps they do, but is this anything more than a plausible surmise? In general, we think that, throughout the volume, the distinction has not always been carefully drawn between fact and interpretation. We are disappointed, too, by the slight mention of such experimental evidence as exists for the reality of warning coloration among animals.

Now and then we meet with what sounds like a bit of vicious teleology, though the author would doubtless repudiate such an interpretation of his words. Referring to the faithfully figured "fungus spots" upon the wing of the leaf butterfly (Kallima), he tells us that "these tall, black scales doubtless represent [*sic*], in form as well as in colour, the fructification in the centre of a patch of leaf-attacking fungus, perhaps the very kind which at a later stage of development produce the holes suggested by the 'windows' on another part of the wing surface" (p. 206). The endeavor to translate this statement into terms of natural selection, regarded merely as the survival of the fittest, seems to the reviewer to

reveal grave difficulties, either in that theory itself or in Poulton's interpretation of these particular facts.

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The Psychology of Advertizing: A Simple Exposition of the Principles of Psychology in Their Relation to Successful Advertizing. WALTER DILL SCOTT. Boston: Small, Maynard & Co. 1908. Pp. 269.

This handsome book, whose mechanical make-up illustrates Professor Scott's theory of advertizing, is dedicated to "that increasing number of American business men who successfully apply science where their predecessors were confined to custom." The publishers advertize the book as "an indispensable business-building book." The first eleven chapters give a simple outline of such processes as memory, feelings, instincts, suggestion, will, habit, laws of progressive thinking. The next four chapters are more special: XII., "Attention Value of Small and of Large Spaces"; XIII., "Mortality Rate of Advertizing"; XIV., "The Psychology of Food Advertizing"; XV., "The Unconscious Influence in Street Railway Advertizing." Chapter XVI. discusses the "Questionnaire Method, Illustrated by an Investigation upon Newspapers." Chapter XVII. concludes the book with a useful bibliography. The book has no index, but includes a list of illustrations, which are mostly facsimiles of actual advertisements.

Professor Scott writes interestingly, and it is not unlikely that some business men may be attracted to psychology by a practical study that appeals to a strong practical interest. The illustrations of advertizing are drawn for the most part from the advertizing sections of popular illustrated magazines of the better sort. It is to be hoped that Professor Scott's interest in applied psychology will stimulate other psychologists to test the value of their theories by means of practical observation and experiment. Since 1900 our author has been writing, not only on the theory and psychology of advertizing, but also on such subjects as the psychology of impulse and the psychology of public speaking.

As a rather surprising sign of the times, one notes that the author marshals a "selected list of the best books on advertizing" that includes forty titles in English and mentions twenty-three American magazines devoted to advertizing. Psychologists would be interested in corresponding lists for England, France, Germany, Japan, and other countries that believe "it pays to advertize." The bibliography also gives us twenty-two titles of "books on psychology which are most helpful to business men." This particular list would most likely undergo some revision if it were voted on by psychologists and business men generally. For instance, Wundt's "Outlines of Psychology" can hardly be considered popular enough for the average man interested in plain-sailing applied psychology. Over a hundred titles of articles on advertizing found in non-technical journals add to our impression that there is a wide-spread interest in advertizing and its psychology. Inquiry about business men's actual

psychological reading, however, would show, at least in some parts of the country, that great store is set by such books as Hudson's "Psychic Law" (and other weird psychic things). Perhaps books like Professor Scott's will do their part in pointing out to the laity the clearer paths of psychological progress.

Perhaps the most interesting chapter to psychologists is the study of the advertizing value of large, as compared with small, spaces. The general reader may find most food for thought in the last chapter, where newspaper reading is studied. And yet, such is the irony of fate in much that is called applied psychology, that we must confess to finding the least psychology in the most valuable chapters! However, we can hardly charge *that* to Professor Scott's account. His work is somewhat of the pioneering stripe, and we must be thankful for what he has given us and continue to hope that applied psychology will soon come to its own. This and other like books point out the advisability of cultivating the field of ethology, the psychology of character, in such wise that we may come to understand—something about which the votaries of eugenics care much—what things go together and work together in practical conduct and character.

It may give point to the last remark to instance a few cases in which Professor Scott's interpretation of the average man's reaction is rather doubtful. (1) In discussing how memory is keen in the case of facts exciting our feelings, the author says (p. 17): "The advertizement of Gold Dust pleases me and convinces me that the product is good. The advertizement of Rough on Rate amuses me because it is so excessively silly. It does not please me, does not convince me of the desirability of the goods." Trying these advertizements on others as well as on myself, I can not corroborate Professor Scott's conclusion. To me (and others) the Rough on Rats advertizement, exaggerated as it is, conveys the idea that one had better invest in Rough on Rats so as to avoid the household confusion brought about by the impetuous chase after a rat. On the other hand, the Gold Dust Twins do not seem as "cute" to those familiar with pickaninnies as to those who seldom see them. Both advertizements are funny and silly, and neither convinces me of the "desirability of the goods." Nevertheless at this moment I can not think of a single rat poison except Rough on Rats, and I can recall the name of Pearline and other washing powders. Were I obliged to purchase rat poison in a hurry, I should undoubtedly get Rough on Rats, little as I am convinced of its desirability. (2) The importance of individual differences and the danger of generalization from a subjective basis are illustrated by the author's statement about the most pleasing among a number of bisected lines (p. 27). We are told that "if a straight vertical line is to be divided into two unequal parts, you prefer to have the division come above the middle" (doubtless many estheticians would agree with this statement). I tried the experiment of "pleased choice" on four persons, with the following result: The mother of a family sided with Professor Scott, "because the line looked blacker and sturdier!" Her sister and

the negro man-servant chose the line cut in the middle, because it is "even." I chose (instinctively, while first glancing over the book) the line cut nearest the bottom, because when I was a child a slender stiletto always aroused my imaginative enthusiasm. (3) In discussing the advertizement of a lady suffering from obesity, our author says (p. 43), "I feel sorry for her and sympathize with her in her affliction. She certainly feels about the matter just as I should, and consequently it is easy for me to imagine myself in her stead and to feel the need for relief from obesity and to take the necessary steps to secure such relief." Now, certain people of my acquaintance are assuredly not affected in any such fashion. "Washing fat away" by the use of an "external remedy" does not appeal to them, nor do they feel sorry for the very comfortable-looking lady in the picture. Perhaps their "advertizing" sympathy is ill-developed. (4) The advertizement of the New York Central, on page 177, is labeled as having "weak attention value in any size." It is headed "5 Pointers," and the numerals, 1 to 5, appear in succession on the left-hand side of the page. In spite of the fact that none of Professor Scott's fifty subjects mentioned this full-page advertizement, I am inclined to think that further investigation would show that travelers intending to visit the territory covered by the New York Central, while they might not notice the advertizement in a rapid scanning of advertizements for experimental purposes, would read the advertizement when their prevailing interest was connected with the attitude of "travel." Much depends on prevailing attitude and interest, and advertizements overlooked in one mood may be carefully read in another. The present writer, who travels a great deal, was struck by this advertizement and read it through carefully. In short, this advertizement may serve the specific purpose for which it was intended, and that is just about what an advertizement ought to do.

Professor Scott has an interesting table, on page 236, wherein it is shown that interest in local news, political news, and financial news far exceeds that in the other items of news. A thorough-going ethological treatment would connect these results with the author's chapter on instincts. In any scheme of applied psychology the appropriative, gregarious, and expressive instincts would have a large treatment. These newspaper results would connect together the fundamental informational or sensational instincts in a very suggestive manner.

The book is decidedly worth reading, especially by the increasing number of hard-headed folk who believe that a science, like a soul, is known unto all men by its fruits. Unquestionably one of the fruits of the study of psychology in any of its phases is general culture, another is increase of analytic power—and there are other admirable fruits. But, in the long run, the public in general will judge the science of mind by its practical explanatory and suggestive power. Books like this deserve to be welcomed on all hands.

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The Fragments of Empedocles. Translated into English verse by WILLIAM ELLERY LEONARD. Chicago: The Open Court Publishing Co. 1908. Pp. viii + 92.

This translation of the "Fragments of Empedocles" deserves credit for the extent to which it preserves the exact meaning, together with the beauty and power of the original. The translator is primarily a literary workman attracted to Empedocles as poet. Yet a careful study of Empedocles as philosopher is made the basis of the work, and in a general introduction and explanatory notes following the text the needs of students of philosophy are sufficiently kept in view so that the book will be a useful manual for the study of Empedocles.

A poetic rendering of the fragments, if ably executed, is, in an important respect, a better basis for their interpretation than the most painstaking prose translation. If, by the retention of the poetic form in which the writings "On Nature" and "The Purifications" were originally cast, the translator enables us to fall imaginatively into the spirit of their conception, he has given a considerable aid towards their correct appreciation. Apart from the general inadequacy of translations, we discover in the best prose versions of the fragments an ineffectiveness due to our recognition that the texture of Empedocles's thought is poetic. The philosopher brings to view a world drama, with love and strife in alternate ascendancy; a panorama of cosmic activities, where organic life arises under striking, almost spectacular conditions. Empedocles has a method of explanation that is essentially poetic. In exact reasoning he is not the equal of other early Greek thinkers, while he excels in the variety and vital quality of his thought. Even his so-called anticipations of science attest the daring imagination of one temperamentally a poet. It is for this reason that by producing a strong and dignified rendering of the fragments in English verse, Dr. Leonard has performed a more significant service for the study of Empedocles than the translator ordinarily achieves.

The general fidelity to the original is closer than would be foreseen as possible under the conditions of metrical form. The Greek text of each fragment accompanying its translation offers a ready means of check where departures have been necessary for clearness or adaptation to poetic requirements. Besides unessential variances by which the meaning is not affected, in a few important passages a free rendering is made which might give rise to misconception. But literal translations are usually given in the notes. In Fragment 6, *τέσσαρα γὰρ πάντων ῥιζώματα* appears in translation, "the fourfold root of all things." *ταῦτα*, by which Empedocles makes facile reference to the primordial four, is rendered "the elements," by supplying *στοιχεῖα*, a term nowhere used by Empedocles. In the translation of Fragment 21, there is an obscurity not occasioned by a difficulty of the text in the line "Aught that behooves the elemental forms."

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Procli Diadochi in Platonis Cratylum Commentaria. Edidit GEORGIUS PASQUALI. Leipzig: B. G. Teubner. 1908. Pp. xiii + 149.

The present edition is clearly superior to its predecessors, and we may be grateful alike to editor and publisher for a product which may be used with confidence along with Kroll's edition of "Proclus on Plato's Republic" and Diehl's edition of his "Commentary on the Timæus." In addition to the text and the *apparatus criticus* at the foot of the page the editor has provided four indices, dealing, respectively, with authors quoted or referred to, with noteworthy words, with etymologies and glosses, and with neo-platonic elucidations and comments to the Cratylus. The last-mentioned index, though occupying less than two pages, is invaluable. The index of noteworthy words is good; but one wishes to have a complete list if any is to be given.

Intrinsically the commentary—or rather the extracts, for only such survive—of Proclus on the Cratylus does not compare favorably with those which he supplied to the Republic and to Timæus; but, even so, there are nuggets of much value, though relatively few, to be found in the deposit of the neo-platonic stream of criticism and elucidation, which flowed generously about the Cratylus. Occasionally a commentator had the insight to perceive that Plato was indulging in a frolic, but in general what he says is taken as if meant in all seriousness. To be sure, Plato had a serious purpose even in his jesting, and now and then Proclus helps us to a better appreciation of his thought and argument.

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JOURNALS AND NEW BOOKS

REVUE DE MÉTAPHYSIQUE ET DE MORALE. January, 1909. *Correspondance inédite de Ch. Renouvier et de Ch. Secrétan* (pp. 1–47). – A set of letters concerning many philosophical opinions and writings of the authors, enlivened by personal and human touches. *L'expérience morale* (pp. 48–51): F. RAUH. – The preface to a second edition of M. Rauh's book of this title. *Le premier système de Nietzsche ou philosophie de l'illusion* (pp. 52–86): CH. ANDLER. – A study of Nietzsche's first period in which his philosophy is not a theory but a psychology of knowledge, derived from Schopenhauerian and Darwinian sources. *Études critiques. Sur de récents travaux de philosophie physique d'Abel Rey:* H. MICAULT. *Enseignement. Psychologie et pédagogie ou science et art:* L. DUGAS. *Questions pratiques. Conditions d'une doctrine morale éducative (suite):* J. DELVOLVÉ. *Supplement.*

ANNALEN DER NATURPHILOSOPHIE. Band 7, Heft 4. December, 1908. *Zur Regulierungsfunktion im Zentralnervensystem* (pp. 353–372): F. SIMBRIGER. – An inconclusive consideration of the problem of the unitary action of the cortex from the physiological side. *Die*

Begrundung der Energetik durch Leibniz (pp. 373–386): A. E. HAAS. – Leibniz first clearly expressed the fact that in transformations of energy there is no loss or gain, and he marks the climax reached up to the time of Robert Mayer and Joule. *Zur Entstehung der Arten* (pp. 387–392): O. NAGEL. – *Mechanismus oder Vitalismus* (pp. 393–409): P. FRANK. – Neither mechanism nor vitalism may stand upon "parsimony of causes," since the former escapes the "constants" of the other only through the introduction of hypotheses which the latter does not need. The questions they discuss are three. *Die historische Analyse des Energieprinzips* (pp. 410–416): A. E. HAAS. – The principle of energetics is compensation, which satisfies both of the old philosophical demands—for permanence and for unity. *Politische Okonomie und Energetik* (pp. 417–428): O. NAGEL. – An attempt to apply mechanical terminology to social phenomena. *Eine Revision der Grundgesetze der Materie und der Energie* (pp. 429–443): G. N. LEWIS. – A new system of mechanics proposed to unify modern conceptions, in which mass shall be dependent upon velocity, the moment equal mv, and kinetic energy vary between $\frac{1}{2}mv$ and mv, as the velocity varies between 0 and the velocity of light. *Dedekind und Bolzano* (pp. 444–449): J. BAUMANN. – Their theories of infinity. *Von Cyons neue Grundlegung der Mathematik* (pp. 450–458): J. BAUMANN. – A discussion of the theory that the labyrinths are the seat of the mathematical sense for space and time. *Psychographischen Studien. II. Julius Robert Mayer* (pp. 459–498): W. OSTWALD. – The contrast between Mayer and Davy emphasized in the unhappy disposition, narrow sympathies, and bad fortune of the former. Mayer's peculiar freedom from attachment to established ways of thinking. *Neue Bücher* (pp. 499–525): W. O. – W. Pollack, *Die philosophischen Grundlagen der wissenschaftlichen Forschung.* E. Becher, *Philosophische Voraussetzungen der exakten Naturwissenschaften.* H. Witte, *Über den gegenwartigen Stand der Frage einer mechanischen Erklarung der elektrischen Erscheinungen.* E. Rignano, *Über die Vererbung erworbener Eigenschaften.* R. Goldschied, *Entwicklungswerttheorie. Entwicklungsökonomie. Menschenökonomie.* C. Wenzig, *Die Weltanschauungen der Gegenwart im Gegensatz und Ausgleich.* H. Driesmans, *Dämon Auslese.* W. James, *Der Pragmatismus.* E. Hormeffer, *Wege um Leben.* A. Wagner, *Streifzuge durch des Gebiet der modernen Pflanzenkunde.* R. Sleeswijk, *Über die Bedeutung des psychologischen Denkens in der Medizin.* C. Siegel, *Herder als Philosoph.* G. F. Lipps, *Mythenbildung und Erkenntniss. Die Philosophie im Beginn des zwanzigsten Jahrhunderts. Festschrift für Kuno Fischer,* herausgegeben von W. Windelband. M. Verworn, *Die Mechanik des Geisteslebens.* E. A. Boucke, *Goethe's Weltanschauung auf historischer Grundlage.*

Külpe, Oswald. *Immanuel Kant: Darstellung und Würdigung.* Leipzig: B. G. Teubner. 1909. Pp. vi + 163.

Maugé, Francis. Le Rationalisme comme hypothèse méthodologique. Paris: Félix Alcan. 1909. Pp. xii + 606.

Richert, Hans. *Schopenhauer: Seine Persönlichkeit, seine Lehre, seine Bedeutung.* Leipzig: B. G. Teubner. 1909. Pp. 114.

Vial, Louis Charles Emile. *Les Erreurs de la Science.* Paris: chez l'auteur. 1908. Pp. iii + 446.

Voss, Dr. A. *Über das Wesen der Mathematik.* Leipzig und Berlin: Druck und Verlag von B. G. Teubner. 1908. Pp. 98.

NOTES AND NEWS

TO THE EDITORS OF THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

GENTLEMEN: THE JOURNAL OF PHILOSOPHY reported in its issue of March 4 that I am about to publish this spring a new book entitled "Psychology and Crime." I beg to say that it is a misunderstanding. The book which has appeared under this title is a London edition of my little volume called "On the Witness Stand: Essays on Psychology and Crime," which appeared here last spring. The English publisher has made this change of title without my consent and without my previous knowledge. The only books which I am to publish this spring are "Psychotherapy" (Moffat, Yard & Co., New York) and "The Eternal Values" (Houghton, Mifflin, Boston). The latter volume is in its chief parts an English version of my "Philosophie der Werte."

Very sincerely yours,

HUGO MÜNSTERBERG.

CAMBRIDGE, MASSACHUSETTS,
March 13, 1909.

THE next meeting of the Western Philosophical Association will occur in St. Louis, the 9th and 10th of April. The meeting is held in St. Louis to commemorate the semi-centennial of the history of philosophy in the West, which had St. Louis for its early center. It is proposed that those who contribute papers keep in mind the different phases of the philosophy emphasized by this early movement, especially Hegelianism. Information regarding the subjects of these papers may be had by addressing the secretary, Professor John E. Boodin, University of Kansas, Lawrence, Kansas.

THE *Rivista Filosofica* and the *Rivista di Filosofica e Scienze Affini* have been merged. The new journal is to be called the *Rivista di Filosofia.* Communications should be addressed to Professor B. Varisco at the University of Rome.

THE death of Dr. Simon Summerville Laurie, professor emeritus in the University of Edinburgh, is announced. Professor Laurie wrote much on the subjects of ethics and education.

THE Society of Anthropology of Paris celebrates the fiftieth anniversary of its foundation on the seventh, eighth, and ninth of the coming July.

THE death has been reported of Dr. Herman Ebbinghaus, Professor of Psychology at the University of Halle.